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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,165	05/01/2001	David A. Atkinson	LTI-PI-355	5640

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EXAMINER

GURZO, PAUL M

ART UNIT PAPER NUMBER

2881

DATE MAILED: 06/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/847,165

Applicant(s)

ATKINSON ET AL.

Examiner

Paul Gurzo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 79-99 is/are pending in the application.
- 4a) Of the above claim(s) 90-98 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 79-89 and 99 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 79-82 and 99 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Andrien, Jr. et al. (6,326,616).

Regarding claim 79, 616 teaches an ionization source comprising a sample inlet (9), an electrically conductive conduit (3 and 8) coupled to the sample inlet, the conduit comprising a first and second end configured to receive the sample from the inlet and discharge the sample from the conduit (col. 6, line 39 - col. 7, line 4 and Fig. 1). They also teach an electrically conductive reference device (4) positioned proximate the second end of the conduit and a mass analyzer employed in the spectrometer (col. 12, lines 60-61 and claims 14 and 15). They do not explicitly teach ionization within the ionization area between the reference device and the conduit. However, they teach that ionization occurs in a chamber according to Fig. 8, reference 210. While this may be viewed as a slightly different embodiment, the teaching that ionization happens in a "chamber" holds for Fig. 1. In Fig. 1, the ionization must occur in the area between the reference device and conduit. Because a potential is applied to the reference device and conduit (col. 6, line 39 - col. 7, line 4) ionization will occur in that area. Further, Applicant admits that ions are formed via electric fields from voltages applied to the reference device (4) and conduit (3 and 8) (See arguments dated 11/15/04, page 6, paragraph 1). Therefore, the

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application of a voltage causes ion formation because the ions are ionized in the area between the reference device and conduit. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to ionize the droplets in the area between the reference device and conduit because desired voltages can be applied to ensure adequate ion formation in an efficient manner.

Regarding claims 80-82, Fig. 1 clearly depicts the claimed locations and they teach a sweep gas (5), and Fig. 1 depicts numerous grooves in the reference device that will obviously allow for removing the sweep gas from the ionization area (col. 6, lines 15-18).

Regarding claim 99, 616 clearly depicts the claimed sample inlet and conductive conduit isolation in Fig. 1.

Claim 83 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Andrien, Jr. et al. (6,326,616) in view of Kamo et al. (4,028,617).

While it is known that proper working order will only be achieved through accurate placement of the reference device, the above-applied art is silent to the claimed Paschen distance. However, 617 teaches that the spark discharge that arises between the gap of the two electrodes conforms with Paschen's Law (col. 1, lines 27-36). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the reference device at a distance greater than Paschen's distance so that the proper potential can be maintained.

Claim 84 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Andrien, Jr. et al. (6,326,616) in view of Wesley (4,458,153), and further in view of Liang et al. (5,081,397).

The above-applied art does not state the claimed metal, but 397 teaches the use of stainless steel electrodes (12) (col. 6, lines 65-66, and Fig.1). Therefore, it would have been

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obvious to one of ordinary skill in the art at the time the invention was made to use stainless steel to reduce undesired effects of arcing.

Claims 85-89 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Andrien, Jr. et al. (6,326,616) in view of Spangler (6,407,382).

Regarding claims 85-87 and 89, 616 teaches the use of a potential generating means capable of maintaining the desired potential of the electrodes (col. 6, line 39 -col. 7, line 4), but they do not teach an electrical circuit to achieve these results. However, 382 teaches a solid-state circuitry for operation as well as a transistor switch to adjust the potential. The discharge is powered by a high voltage power supply (Abstract and col. 7, line 59 - col. 8, line 10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an electrical circuit because it achieves much the same result as the prior art and is merely a design choice.

Regarding claim 88, 616 teaches electrically grounding the conduit (col. 6, lines 55-64), and 382 teaches that the cathode is connected to the low side of the potential, which serves as a floating ground (col. 4, lines 17-20). 382 also teaches that the electrodes may be rings or grids (col. 8, lines 34-36).

Response to Arguments

Applicant's arguments filed 5/25/05 have been fully considered but they are not persuasive. Applicant argues that the prior art does not teach 1) a sample inlet, 2) the second end configured to discharge the sample, or 3) ionization of the sample within the ionization area.

Regarding 1), a sample inlet is merely an area or an opening where a sample is introduced. The probe tip (12) emits a sample that is directed to electrodes (3,4, 8). The sample

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then enters that space between the electrodes. Regardless of whether the prior art explicitly names this inlet a sample inlet or not does not negate the fact that this is a sample inlet.

Regarding 2), all elements of the source are taught by the prior art as described above. The claim language “configured to discharge” does not limit the apparatus (i.e. source) in any way. As long as the prior art has a conduit with a second end and the second end has an opening that leads to another location, it can “configured to discharge”. The apparatus of the prior art does not have to be modified in any way to be configured to discharge the sample from the conduit. Further, 616 teaches that the ions (sample) are swept into a mass analyzer (col. 6, lines 34-38). Therefore, the apparatus of 616 is configured to discharge the sample from the conduit.

Regarding 3), all elements of the source are taught by the prior art as described above. The claim language “configured to ionize” does not limit the apparatus (i.e. source) in any way. As long as the prior art has a reference device and a conduit, it can “configured to ionize” without modifying it in any way. Further, ionization occurs when a potential is applied to an electrode, thereby creating an electric field to add or remove electrons, thereby increasing or reducing charge. 616 teaches establishing such an electric field by applying a positive or negative potential to electrodes 3, 4, and 8. This potential application and subsequent electric field generation within the reference device and conduit will create an ionization area where ionization will occur.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Gurzo whose telephone number is (571) 272-2472. The examiner can normally be reached on M-Fri. 7:30 - 6:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached at (571) 272-2477. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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